



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/105,739	06/26/1998	GARY B. BRONNER	BU9-97-149	5946

23123 7590 06/17/2003  
SCHMEISER OLSEN & WATTS  
18 E UNIVERSITY DRIVE  
SUITE # 101  
MESA, AZ 85201

EXAMINER

RAO, SHRINIVAS H

ART UNIT	PAPER NUMBER
----------	--------------

2814

DATE MAILED: 06/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/105,739

Applicant(s)

BRONNER ET AL.

Examiner

Steven H. Rao

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Art Unit: 2814

Response to Amendment

Applicants' amendment filed on May 21, 2003 has been entered on May 21, 2003.

Therefore claims 1 to 29 as recited in the Amendment are currently pending in the Application.

*Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-29 are rejected under 35 U.S.C. 102(b) as being anticipated by AAPR (Applicants' Admitted Prior Art eg, figure 22 etc., herein after AAPR).

With respect to claim 1 AAPR describes a method for forming interconnect between a storage capacitor (Fig. 22 # 24, specification page 3 lines 17 to page 4 line 12) and transfer device (metal line)(fig. 22 # 14) in a memory cell including:

Forming a capacitor having a lip extending over the top (fig. 22 portion of 24 extending over 10) and diffusing dopant from the lip into the top surface of the substrate forming a surface strap (AAPR specification page 4 lines 11 -12).

AAPR fig.22 shows surface strap 11 connecting the capacitor24 and the transfer device 14 to form straps that are self aligned with capacitor and the transfer device and to form memory cells with higher densities.

With respect to claims 2-3 AAPR describes a method for forming interconnect between a storage capacitor (Fig. 22 # 24) and transfer device (figure 22 # 14) in a memory cell including:

Forming a first layer (fig. 22 # 12) on the substrate (fig. 22 # 10), etching a capacitor opening (fig. 22 capacitor opening prior to formation of 24) forming sidewall spacers on sidewall of the oversized capacitor opening (fig.22 # 28) electrode with a high dielectric constant material. (figure 22 16) etching a trench in the substrate (fig. 22 # 30), removing sidewall spacer (specification page 4) filling the trench with polysilicon capacitor fill material (fig. 22 # 24, specification page 4 lines 2-5).

With respect to claims 4 - 5 (fig.22 connection between 11) and transfer device 14) in a memory cell including:

Recessing the capacitor fill material (Figure 22 , specification page 4 lines 8-9 ) and filling with dielectric material ( specification page 4 line5-6 , not shown in figure 22) and wherein the diffusing is done by annealing (specification page 4 line 2 ).

With respect to claims 6-9 AAPR describes a method for forming interconnect between a storage capacitor and transfer device in a memory cell including: a gate dielectric, a polysilicon gate conductor and a silicon nitride or silicon dioxide insulator (AAPR figure 22, specification page 4 line 6, further both silicon nitride. silicon oxide well known dielectrics).

With respect to claims 10-11 AAPR describes a method for forming interconnect between a storage capacitor in a memory cell including: claim 10 repeats the steps of

claim 1-9 and further adds forming a shallow trench isolation step (fig. 22 # 30) . Claim 11 adds a patterning step (AAPR fig. 22 # 16).

With respect to claims 12-15 AAPR describes a method for forming in metal line)(fig. 3M, metal word line) in a memory cell including:

Claims 12 and 15 repeat all the steps of claims 1-11 and add the step of source/drain implants (AAPR fig. 22, # 18,20, specification page 3 lines 23-25), patterning the word line by etching (AAPR fig. 22 #17, specification page 3 line 22) removing a portion of insulator (specification page 4 lines 8-9),

Claims 16 repeats the steps of claim 6, claim 17 repeats the steps of claim 1 and 11, claims 18-19 repeat the steps of claims 6 and 9. Claim 20 repeats the steps of claim 1.

With respect to claims 21 – 29 AAPR describes a method for forming and transfer device in a memory cell (specification page 4 line 4) claim 22 repeats steps of claim 12, claim 23 repeats steps of claim 14, claim 24 repeats steps of claims 12 and 15, claim 25 repeats steps of claim 23, claim 26 repeats steps of claim 14, claim 27 repeats steps of claim 13 and 15, claim 28 repeats steps of claim 12 and 26, claim 29 repeats steps of claims 12 and 28.

#### ***Response to Arguments***

Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Rao whose telephone number is 703-306-5945. The examiner can normally be reached on M-F, 8.00 to 5.00.


The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703- 308-0956.

Steven H. Rao

Patent Examiner

June 12, 2003

  
SUPERVISOR  
TECHNOLOGY CENTER 2003